BY ORDER OF THE COMMANDER
RAF LAKENHEATH (USAFE)

LAKENHEATH INSTRUCTION 21-107

15 MARCH 2010

Maintenance

EMERGENCY RESPONSE AND CRASH DAMAGED DISABLED AIRCRAFT RECOVERY (CDDAR)

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This instruction implements Air Force Policy Directive 21-1, *Air and Space Maintenance,* and interfaces with AFI 21-101, *Aircraft and Equipment Maintenance Management*. It identifies crash recovery and in-flight/ground emergency procedures for the recovery of crashed and disabled aircraft and applies to all activities under the functional and operational control of the 48th Fighter Wing (48 FW). Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using AF Form 847, *Recommendation for Change of Publication*, prescribed by AFI 11-215, *USAF Flight Manuals Program*; route AF Form 847s from the field through Major Command (MAJCOM) publications/forms managers. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with (IAW) Air Force Manual (AFMAN) 33-363, Management of Records, and disposed of IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS) located at: **https://www.my.af.mil/afrims/afrims/afrims**/.

SUMMARY OF CHANGES

This instruction has been substantially revised and must be completely reviewed. It updates previous edition with procedures for recovery of crash damaged aircraft and adds procedures for the recovery of HH-60 helicopters throughout. Additionally this supplement requires the use of the USAFE Base Form 123-1, *In-Flight Emergencies/Precautionary Landings/Ground Emergencies,* prescribed by the Lakenheath Supplement to AFI 21-101, *Aircraft and Equipment Maintenance Management* and its Combat Air Forces (CAF) Supplement, as the replacement for the 48 FW Emergency Action Checklists previously prescribed by the superseded publication.

1. Responsibilities for Commanders and Key Leaders.

1.1. General Responsibilities. Squadron commanders and supervisors are responsible for ensuring compliance with this instruction. Supervisors at all levels must recognize the sources of hazards and apply appropriate safety practices to minimize their effect. There is an infinite variety of possible emergency and crash recovery situations. Therefore specific procedures cannot be prescribed for every situation. All aircraft recovery actions are coordinated through the disaster control group, to the Incident Commander (IC). Practice/participation in wing crash recovery exercises and implementations of operational risk management techniques are imperative for all emergency and crash recovery operations.

1.2. The 48th Maintenance Group Commander will identify Crash Recovery Team Chiefs (CRTC) by memorandum. CRTCs will be qualified to the 7 skill level (minimum) and meet the requirements as prescribed in AFI 21-101 CAF Supplement, *Aircraft and Equipment Maintenance Management*, Chapter 14, paragraphs 14.10.5., 14.10.5.1., and 14.10.7.2. CRTCs respond to and coordinate all aircraft lifts (segmented bags or crane) for exercise and real world scenarios. As a minimum, CRTCs will respond to all CDDAR incidents.

1.3. 48th Equipment Maintenance Squadron Repair and Reclamation (R&R) Section Chief Responsibilities:

1.3.1. Ensure enough CRTCs are trained and Crash Recovery Teams (CRTs) are formed to cover all RAF Lakenheath local flying operations. For normal flying operations, each CRT will consist of a team leader, tow supervisor and brake rider. CDDAR response teams will consist of a team chief, crane operator (as required) and the required manning (designated by the team chief) to facilitate recovery procedures. CRTs must receive training as directed by AFI 10-2501, *Air Force Emergency Management (EM) Program Planning and Operations*. In addition, 48 CES/CEF requires CRT members to be trained in the local Standard Operating Guide (Procedures) for Incident Command and Accountability IAW AFI 32-2001, *Fire Emergency Services Program*. The CRT's flight chief will ensure training is scheduled through 48th Civil Engineering Squadron's Fire Department (CEF) and Emergency Management (CEX). Team Leads will be a SSgt or TSgt, 7-skill level R&R technician for F-15C/D/E MDS. The team leader is the on-scene technical advisor to the fire chief.

1.3.2. Ensure a standby CRT is designated for all non-scheduled flying hours. A list of standby CRT personnel will be published monthly and furnished to the Maintenance Operations Center (MOC) through 48 EMS supervision on the standby duty roster.

1.3.3. Ensure CDDAR special equipment, general purpose vehicles and special purpose vehicles are available for 24-hour emergency dispatch as per AFI 21-101, Chapter14, paragraph 14.10.3.1.

2. CDDAR Vehicles and Equipment. The R&R section will be equipped with a CRASH hotline and base station radio for monitoring the crash dispatch net.

2.1. Primary response vehicles provided by/maintained by 48th Logistics Readiness Squadron (LRS) Transportation Flight and will be 6-passenger, 1-ton, 4X4 pickups with heavy duty pintle-hook and utility body (or equivalent) for storage and security of all tools and crash equipment (designated Recovery 1). Vehicle will be equipped with emergency lights, siren, radio (capable of monitoring all maintenance nets to include the Secondary

Crash Net independently), Technical Orders (TOs), tools, and safety equipment to perform immediate response operations.

2.2. MB-2 tow tractor (designated Recovery Tow) maintained by 48 LRS Transportation Flight. Tow tractor will be equipped with emergency lights, siren and radio (capable of monitoring all maintenance nets to include the secondary crash net independently).

2.3. MD-1 universal tow bar maintained by 48 EMS AGE Flight.

2.4. Three disabled wheel dollies maintained by 48 EMS AGE Flight.

2.5. Blown tire trailer equipped with aircraft axle jacks and spare wheel/tire assemblies for F-15C/D/E . Tire pressure checks on spare aircraft wheel assemblies will be accomplished weekly, prior to local flying and documented on AFTO Form 244, *Industrial Support Equipment Record*, as prescribed by TO 00-20-1, *Aerospace Equipment Maintenance Inspection, Documentation Policies and Procedures*.

2.6. Heavy industrial crane provided by 48 CES and maintained by 48 LRS Transportation Flight. If CES/LRS cannot provide a suitable crane, civilian equivalent will be contracted.

2.7. Crash trailer(s) with recovery equipment to include Personal Protective Equipment (PPE) for composite/hazardous materials. As a minimum, PPE will include, but is not limited to tyveck suits, full face respirators, gloves, and hardhats. When responding to exposed composite materials, sleeves and pant legs will be taped to prevent contamination on clothing.

2.8. Air bags in sufficient quantity to support the aircraft assigned to the Wing.

2.9. Control consoles in sufficient quantity to operate the required number of airbags in a single operation.

2.10. One F-15 lift sling.

2.11. General lifting/securing devices such as belly bands, shackles, chains, cargo tie-down straps, block and tackle, sling adapters, jack adapters, nylon/cotton rope.

2.12. Semi-tractor truck and 40- foot flatbed trailer maintained/operated by 48 LRS Transportation Flight to facilitate CDDAR aircraft removal as determined by CRTC.

3. Emergency Response Procedures.

3.1. The IC or designated representative, is in charge of the ground response to all in-flight/ground emergencies (IFE/GE) until the emergency is terminated, or deemed safe for CRT to take charge of the aircraft. The IC will establish a cordon and ensure accountability of all initial responders that are within the established cordon. CRT will obtain clearance from the IC prior to engaging in any emergency recovery operation.

3.2. The CRT will respond to all IFEs/GEs broadcast over the Secondary Crash Net or any other viable means of communication and render assistance.

3.3. Tasks requiring assistance from other base organizations will be coordinated through the MOC and/or the Emergency Operations Center (EOC) by the CRTC.

3.4. For recovery of Northern Atlantic Treaty Organization (NATO) or large-frame aircraft beyond the capability of the CRT, the CRTC will contact the United States Air Forces in Europe (USAFE) Command Post through the Lakenheath Command Post for assistance.

3.5. Transient Alert will assist CRT with all transient aircraft emergencies. Refer to TO 00-105E-9, *Aerospace Emergency Rescue and Mishap Response Information (Emergency Services).*

3.6. Bioenvironmental engineer flight (BEE) will respond to and survey CDDAR incidents where aircraft structures composed of composite materials have been damaged/exposed to provide technical expertise and implement applicable environmental protection procedures.

3.7. During IFE/GE the Team Leader will:

3.7.1. Ensure the CRT is available with the proper equipment at the pre-planned location as soon as possible after notification of an IFE/GE. **Note:** Point 3 south is the normal staging area for all IFEs.

3.7.2. Ensure that hoisting, wheel skates, or pneumatic bags are used as directed by USAFE Base Form 123-1, *In-Flight Emergencies/Precautionary Landings/Ground Emergencies*, as prescribed by AFI 21-101 Lakenheath Supplement, *Aircraft and Equipment Maintenance Management*, Local Job Guide 48 MXG-03 F-15(A/C/E), *Crash Recovery Response and Lifting Procedure*, TOs 1F-15C-3-1, *Structural Repair - Organizational and Intermediate - General Information*, 1F-15E-2-DV-1, *F-15E Integrated Maintenance Information System*, 35D3-32-3-1, *Dolly, Disabled Wheel, Aircraft Towing Type MHU-104/E, NSN: 1730-00-013-8813 (Product Development),* 35D5-5-3-11 *Pneumatic Bag, Aircraft, Lifting, 12 Ton Capacity, Type F-2, F-1, USAF Stock No. 1730-263-2962*, 35D6-1-106 *Aircraft and Engine Slings (General) and Restraining Devices*, and AFOSH Standard 48-137, *Respiratory Protection Program.*

3.7.3. Establish immediate radio contact with the IC for assistance and exchange of information pertinent to the recovery operation. Fire/Crash net will be used for all recovery operations unless otherwise directed by the Tower or the IC.

3.7.4. Keep MOC and IC informed of actions being taken and provide an estimated time of recovery.

3.7.5. Obtain removal priority from the IC or designated representative for the removal of the aircraft from the runway or taxiways. Recovery methods selected will be based on safety, the removal urgency, and priority specified by the IC.

3.8. Aircrew will remain with the aircraft until the aircraft owning maintenance personnel take control of the aircraft or are released from by the IC or CRTC/team lead. To allow for rapid removal of the aircraft from the runway, the aircrew will act as the brake rider while the aircraft is being towed from the active runway.

3.9. Will ensure a CRTC is notified in the event of a CDDAR incident.

4. Runway Closure and Recovery Priorities.

4.1. As a minimum, a disabled aircraft on the runway causing runway closure will be treated as a GE. Tower personnel and/or the Supervisor of Flying will initiate GE procedures.

4.2. In the event that a crashed, damaged, or disabled aircraft is on the runway the 48 Fighter Wing Commander or designated representative will determine the degree of urgency required to clear the runway. If immediate removal priority is given, the CRTC has the option of using heavy construction equipment from 48 CES after coordination with Airfield Management. CRT will direct the operation and assist as necessary to push, pull, lift, or scrape the aircraft from the runway as the situation warrants. **Note:** 48 CES procedures to facilitate response as dictated by this paragraph are listed in AFI 10-211, *Civil Engineer Contingency Response Planning*, 48 FW Plan 10-2, *Comprehensive Emergency Management Plan (CEMP)*. Current runway priorities are listed in Lakenheath Instruction 13-201, *Air Traffic Control, Airfield Operations & Local Flying Procedures*.

5. Off-Base Recovery Procedures. Off-base recovery actions are coordinated through the 48 FW/CC through the Disaster Response Force, i.e. Command Post, Unit Control Centers, Disaster Control Group and any specialized teams. Refer to 48 FW Plan 10-2. The R&R section will coordinate with 48th Contracting Squadron Plans and Programs section for assistance in aircraft recovery in situations of difficult to reach areas such as water or mountains.

6. Training and Certification Requirements for Crash Recovery Team Personnel.

6.1. Possess a valid AF Form 2293, *US Air Force Motor Vehicle Operator Identification Card*, as prescribed by AFI 24-301, *Vehicle Operations*, and an AF Form 483, *Certificate of Competency*, as prescribed by AFI 10-209, *Red Horse Program*, for airfield driving.

6.2. Will be respirator fit tested and qualified by the base Bioenvironmental Office due to the hazards associated with composite materials in the F-15C/D/E and HH-60G aircraft. Additionally personnel will be trained on the hazards associated with aircraft removal include the breaking of composite structures not previously contained and/or during the cleanup of aircraft debris.

6.3. Will receive initial and annual crash recovery training IAW AFI 21-101, and be updated in Integrated Maintenance Data System. Training will be comprised of both academic and hands on training/exercise.

6.4. Will participate in an annual exercise. CRTCs will notify Exercise, Inspections and Readiness (CVI) for coordination purposes.

6.5. Will be qualified on all Crash Recovery Equipment (pneumatic lifting bags, pneumatic lifting console, wheel skate, slings and other hoisting devices, aircraft jacks, and basic ground equipment).

6.6. All crane operators will be trained and fully qualified on crane operations by a certified instructor. Qualification will be documented on AF Form 2293.

6.7. Will participate in annual lift (crane or segmented bag) exercises. Where aircraft lifts are conducted to facilitate training/certification purposes, the ground instructional training aircraft will be utilized.

6.8. Will receive HH-60 familiarization training. Training will include danger areas (plane of rotation, etc.), chemical hazards and emergency/CDDAR staging.

7. Aircraft Owning Organization. Following an IFE/GE, the Aircraft Maintenance Unit (AMU) owing the aircraft will:

7.1. Assemble a tow crew with tow vehicle, tow bar, and all required safety devices. Include a de-arm crew if required and standby at the location designated by the CRTC. **Note:** CRT personnel may install weapons safety pins if they are qualified to de-arm aircraft.

7.2. The CRT will tow the aircraft to the nearest point off the active runway and turn the aircraft over to the owning organization. The AMU is responsible for towing the aircraft from that point back to its designated parking spot.

7.3. Remove the safety devices installed by the CRT from the aircraft and install their own safety devices.

7.4. If crash wheels are used the AMU will change the wheel and return the crash wheel back to the R&R Section as soon as possible.

7.5. Supply qualified Mission Design Series-specific personnel to assist in the removal of aircraft components as necessary.

7.6. In the event of a CDDAR incident, 56th Rescue Squadron will provide personnel to assist with disabled helicopter recovery procedures. As a minimum, a 2A5X3 seven skill level technician will respond to provide technical expertise.

8. Supplemental Procedures.

8.1. For Emergency Aircraft Cable/Barrier Engagement Procedures see Attachment 2.

8.2. For Aircraft Hot Brake Procedures see Attachment 4. **Note:** Reference 48 FW Plan 10-2, for response actions and responsibilities during major peacetime accidents.

8.3. See Attachment 4 for Arming/Dearming, Hot Brakes, and Hung Ordnance Areas.

9. Prescribed and Adopted Forms.

9.1. Adopted Forms.

AF Form 847, *Recommendation for Change of Publication*
AF Form 483, *Certificate of Competency*
AF Form 2293, *US Air Force Motor Vehicle Operator Identification Card*
AFTO 244, *Industrial/Support Equipment Record*
USAFE Base Form 123-1, *In-Flight Emergencies/Precautionary Landings/Ground Emergencies*

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Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

48 FW Plan 10-2, *Comprehensive Emergency Management Plan*, 15 May 2008

Air Force Policy Directive 21-1, *Air and Space Maintenance*, 25 February 2003

AFI 10-211, *Civil Engineer Contingency Response Planning*, 22 September 2008

AFI 11-2F-15 Volume 3, *F-15-Operating Procedures*, 21 July 2004

AFOSH Standard 48-137, *Respiratory Protection Program*, 10 February 2005

Local Job Guide 48 MXG-03, *Crash Recovery Response and Lifting Procedures (F-15A/C/E)*, 6 October 2006

Lakenheath Instruction 13-201, *Air Traffic Control, Airfield Operations& Local Flying Procedures*, 6 August 2008

TO 00-20-1, *Aerospace Equipment Maintenance Inspection, Documentation, Policies, and Procedures*, 30 April 2003

TO 00-105E-9, *Aerospace Emergency Rescue and Mishap Response Information (Emergency Services)*, 3 December 2009

TO 1F-15A-6, *Inspection and Maintenance Requirements Manual*, 1 September 2000

TO 1F-15C-3-1, *Structural Repair –Organizational and Intermediate – General Information*, 15 October 1994

TO 1F-15E-2-DV-1, *F-15E Integrated Maintenance Information System*, 15 March 2009

TO 1F-15E-6, *Inspection and Maintenance Requirements Manual*, 15 June 2000

TO 4B-1-1, *Use of Landing Wheel Brakes and Wheels During Ground Operations*, 31 March 1999

TO 35D3-32-3-1, *Dolly, Disabled Wheel, Aircraft Towing Type MHU-104/E, NSN: 1730-00-013-8813 (Product Development), 15 May 1973*

TO 35D5-5-3-11, *Pneumatic Bag, Aircraft, Lifting, 12 Ton Capacity, Type F-2, F-1, USAF Stock No. 1730-263-2962*, 15 January 2002

35D6-1-106 *Aircraft and Engine Slings (General) and Restraining Devices*, 12 September 2008

Abbreviations and Acronyms

AMU—-Aircraft Maintenance Unit

CDDAR—-Crash Damages Disabled Aircraft Recovery

CRT—-Crash Recovery Team

CRTC—-Crash Recover Team Chief

CTOT—-Controlled Takeoff Time

CVI—-Exercises, Inspection, and Readiness

EOC—-Emergency Operations Center

EWO—-Emergency War Order

FSTR—-Full Spectrum Threat Response

GE—-Ground Emergency

IFE—-In-Flight Emergencies

IC—-Incident Commander

KCAS—-Knots Indicated Air Speed

MOC—-Maintenance Operations Center

NATO—-Northern Atlantic Treaty Organization

PCAS—-Primary Crash Activation System

PPE—-Personal Protective Equipment

R&R—-Repair and Reclamation

SAAM—-Special Assignment Airlift Missions

TO—-Technical Order

TWR—-Control Tower

USAFE—-United States Air Forces in Europe

Attachment 2

EMERGENCY AIRCRAFT CABLE/BARRIER ENGAGEMENT PROCEDURES

A2.1. This attachment supersedes all agencies' Operating Instructions (OIs) and plans dated prior to this instruction and pertaining to cable/barrier engagement procedures. The following procedures are listed in order of sequence of events:

A2.1.1. Runway operations are automatically suspended when an aircraft engages the cable or barrier

A2.1.2. Ensure clearance from the Control Tower (TWR) prior to runway access.

A2.1.3. When responding to barrier engaged aircraft from any direction, do not run over exposed BAK-12 cable tapes.

A2.1.4. The Fire Department controls the immediate area until a fire safe condition is determined. CRT will standby clear of the zone until cleared by the IC. The IC is the representative for all Civil Engineering functions during barrier engagement operation.

A2.1.4.1. If the aircraft is <u>not</u> fire safe, the IC will direct shutdown and the aircrew will egress or be extracted from the aircraft, and the IC will retain control of the area until the area is determined to be fire safe. In dire emergencies, visual signals can be used for engine shutdown. Ordnance configuration and fire fighting withdrawal will be considered if unexpended or hung ordnance are subjected to fire conditions.

A2.1.4.2. If the aircraft <u>is</u> fire safe, the IC will direct CRT to take control of the aircraft. CRT will then direct the pilot to shutdown. After the tail hook is free from the cable, the CRT team will strap or sling the tail hook up, attach the tow vehicle, and tow the aircraft clear of the runway. **Note:** Depending on which BAK-12 barrier is engaged, CRT will only tow recovered aircraft to the closest de-arm or mobility pad. This is necessary to immediately return the tow vehicle to stand-by status as soon as possible for the next IFE/GE.

A2.1.4.3. Hot brake conditions will always be assumed until otherwise determined by the IC or CRT. (See Attachment 3 for hot brake procedures).

A2.1.4.4. Ordnance consideration (unexpended, hung or jammed) will normally be dealt with after the aircraft is removed from the runway, however the IC will make final determination.

A2.1.4.5. Contaminated (Code Four) aircraft engaging the barrier will be decontaminated as required by the CRT and then automatically towed to the designated decontamination area.

A2.1.4.6. Refer to 48 FW Plan 10-2 for post recovery cleanup.

Attachment 3

EMERGENCY AIRCRAFT HOT BRAKE RESPONSE

A3.1. Brakes on the F-15 are made of advanced carbon material. Traditional indications of hot brakes- smoking or glowing brake discs – are not reliable indicators for the F-15. Smoking brakes are usually caused by contamination of the brakes by oil or hydraulic fluid. **Note:** Hot brakes will smoke very little because the intensely hot brakes will have vaporized any contaminant.

A3.2. Hot brake procedures are explained in TO 4B-1-1, *Use of Landing Wheel Brakes and Wheels During Ground Operations*.

A3.3. The pilot (based upon aircraft landing weight, speed, and stopping distance) normally declares hot brakes. However, increased taxi time may result in a hot brake condition that may be undetected by the aircrew. If hot brakes are suspected, return aircraft to locally designated hot brake area in Attachment 4. Reference: TOs 1F-15A-6, *Inspection and Maintenance Requirements Manual* and 1F-15E-6, *Inspection and Maintenance Requirements Manual*.

A3.4. When applying the brakes above 120 Knots Indicated Air Speed (KCAS) during a takeoff abort, or hot brakes are suspected; declare a ground emergency, taxi the aircraft to the designated hot brake area, and follow hot brake procedures. REF: Air Force Instruction 11-2F-15 Volume 3, *F-15 Operations Procedures*.

A3.5. Local Hot Brake Procedures. Reference: Lakenheath Instruction 13-201 and USAFE Base Form 123-1.

A3.5.1. Upon notification of hot brakes or suspected hot brakes, TWR will activate the Primary Crash Activation System (PCAS).

A3.5.2. Hot brake areas are as depicted in Attachment 4.

A3.5.3. Aircraft with known or suspected hot brakes will be directed to the appropriate hot brake area.

A3.5.4. Aircraft with hot brakes anywhere on the airfield other than the runway will immediately notify ground control and hold their position.

A3.5.5. Aircraft will not taxi nearer than 300 feet of an aircraft with hot brakes.

A3.5.6. If maintenance personnel suspect hot brakes, report the ground emergency to the MOC.

A3.5.7. If aircraft engines are shutdown and aircraft is not at the 24 or 06 hot brake area, **DO NOT TOW THE AIRCRAFT**. Keep personnel clear of danger areas and await response of CRT.

A3.5.8. If other aircraft are in the danger area, CRT or the IC will determine on a case-by-case basis if the aircraft will be evacuated. **AT NO TIME WILL SAFETY OF PERSONNEL BE COMPROMISED**.

Attachment 4

AIRFIELD DIAGRAM

Figure A4.1.